Space Weather Forecast

Issued on Sunday, 07 August 2022 at 00:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: G1/Minor Storm intervals likely, mainly day 2 (8th)

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Very Low over the past 24 hours with only B-class flares. There are currently five numbered regions on the disc, including three small bipolar regions rotating towards the southwest limb, and two further small unipolar regions. There are two further unnumbered region in the northwest disc. No Earth-directed CMEs (coronal mass ejections) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind has been mainly at background with speeds were decreasing from 370 km/s to 320 km/s. The total magnetic field of the wind, also showed a rising trend, from weak levels peak at moderately values. The north-south component was mainly positive (northward). Geomagnetic activity was Quiet (Kp 0-1).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remaied at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low or very low solar activity is forecast with only a slight chance of a Moderate-class flare.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar winds are likely to become enhanced through day 1 and day 2 (7th and 8th), as consecutive fast wind arrivals occur from coronal holes, the second of which is likely to be strong and faster. Elevated solar winds of around 550-600 km/s are expected, and only gradually easing by day 4 (10th). Geomagnetic activity will initially be Quiet to Unsettled with Active spells possible, with a chance of isolated G1/Minor Storm intervals day 1 (7th). Activity rising further to Active to G1/Minor Storm intervals day 2 before Easing to Quiet to Active by day 4 (10th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	60	30	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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